

Science and STEM Professional Development

Fall 2015

August 2015

Webinar: Reading & Writing in the STEM Classroom	8/20	Free
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September 2015

Webinar: Developing Authentic Science Fair Research and Projects – grades 5-8	9/2	Free
Webinar: Developing Authentic Science Fair Research and Projects – HS	9/3	Free
Webinar: Bridging the Gap between the AZ Science Standard and the Framework for K-12 Science Education (HS Chemistry)	9/9	Free
Webinar: Reading & Writing in the STEM Classroom (K-12)	9/9	Free
Webinar: Developing STEM Literacy through the Practices (K-12)	9/14	Free
What Are My Science Students Thinking? (Grades K-8)	9/16	\$50
Webinar: Making Sense of ILLPs and Science (Grades 6-12)	9/17	Free
Supporting English Language Learners in the STEM Classroom	9/23	\$20
Making Sense of Science – 5-day Energy Course for Teachers	9/24-26 10/9-10	\$200
Webinar: Bridging the Gap between the AZ Science Standard and the Framework for K-12 Science Education (HS Biology)	9/29	Free

October 2015

Webinar: Developing STEM Literacy through the Practices (K-12)	10/1	Free
Webinar: Bridging the Gap between the AZ Science Standard and the Framework for K-12 Science Education (HS Earth Science)	10/7	Free
Webinar: Using Infographics in STEM (K-12) – Part 1 of 2	10/14	Free
Webinar: Using Infographics in STEM (K-12) – Part 2 of 2	10/15	Free
Bridging the Gap between the AZ Science Standard and the Framework for K-12 Science Education (Grades K-5)	10/15	Free
Webinar: Bridging the Gap between the AZ Science Standard and the Framework for K-12 Science Education (HS Physics)	10/20	Free
Effective Discourse Guided by the Math and Science Practices (Grades 4-8)	10/27	\$50
Effective Discourse Guided by the Math and Science Practices (Grades 9-12)	10/29	\$50

November 2015

Bridging the Gap between the AZ Science Standard and the Framework for K-12 Science Education (Grades 6-12)	11/3	Free
Webinar: Developing Authentic Science Fair Research and Projects (HS)	11/10	Free
Webinar: Developing Authentic Science Fair Research and Projects (Grades 5-8)	11/16	Free
Developing Integrated Curriculum for STEM K-5	11/17	\$25

December 2015

Webinar: 'E'ngineering in the STEM Classroom	12/1	Free
Constructing Explanations in Science (Grades 5-8)	12/3	\$60
Webinar: Effective Discourse Communities in the STEM Classrooms	12/15	Free

Registration for all events is required. Click links for more information and to register.

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Descriptions of Face to Face courses

Courses subject to cancellation due to low enrollment



Featured Professional Development

[Making Sense of Science – 5-day Energy Course for Teachers](#)

Developed by WestEd, this comprehensive professional development course for science teachers provides all the necessary scaffolds for building a scientific way of thinking in teachers and students, focusing on science content, inquiry, and literacy. This 5-day course will be split across 2 weeks.

This course is about making sense of the science of energy. It focuses on science, questioning, and literacy — all in the service of building a scientific way of thinking and instilling that way of thinking in students. Through the course activities, you'll learn practical, relevant strategies for teaching science — how to guide hands-on science learning, support evidence-based discussions, and help your students develop the academic language, habits of mind, and communication skills necessary for sense making and scientific reasoning. As a way to investigate teaching, you'll read and discuss cases written by teachers for teachers. The cases, which include rich examples of student work, allow you to grapple with science content, navigate typical teaching challenges, and experience authentic dilemmas that occur when teaching energy to students. Although this course is designed for middle-school science teachers, it is open to all grade levels of science teachers interested in further developing their own conceptual understanding of energy and how their students learn about energy.

September 24-26

- Day 1 seeks to answer 'What is energy?' and explores the various kinds of energy that keep our world going.
- Day 2 identifies the various types of potential energy and helps to clarify what it really means to have potential energy.
- Day 3 explores the various ways in which heat energy is misunderstood and the ways in which scientists define and talk about heat energy, how it's transferred, and how it affects our world.

October 9-10

- Day 4 provides a systematic explanation for how and why conservation of energy is possible.
- Day 5 explores the complex interactions between food and organisms.

[What Are My Science Students Thinking? \(Grades K-8\)](#)

What science ideas do your students bring to your classroom? What prior ideas do they retain even after instruction? This session will explore ways that formative assessment practices help inform teaching and learning in the science classroom. Participants will practice using science probes, formative assessment classroom techniques, and the Making Sense of Student Work Protocol, which can be used in PLCs or with teams of teachers to inform classroom teaching and student learning. Participants will receive a copy of the book, *Science Formative Assessment, 75 Practical Strategies for Linking Assessment, Instruction, and Learning* by Page Keeley.

[Supporting English Language Learners in the STEM Classroom](#)

This course is intended for Grades 3-8 teachers serving ELL students in science and STEM instruction. The day will focus on incorporating strategies and instructional models that will provide English language learners access to the STEM content. Participants will explore how to select performance indicators from the English Language Proficiency Standards that connect to the STEM disciplines and build in scaffolds to support comprehension.

Bridging the Gap between the AZ Science Standard and the Framework for K-12 Science Education

[\(Grades K-5\)](#) or [\(Grades 6-12\)](#)

How can you align your curriculum and instruction to Arizona's Science Standard, yet teach to the 3-dimensions (practices, crosscutting concepts, and core ideas) of the Framework for K-12 Science Education? Participants will examine the science learning progressions identified within *A Framework for K-12 Science Education* and how they connect to Arizona's Science Standard.

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Effective Discourse Guided by the Math and Science Practices

[\(Grades 4-8\)](#) or [\(Grades 9-12\)](#)

Have you ever wondered how to get your students to think like a mathematician or ask questions like a scientist? This professional development opportunity will help teachers set up a classroom environment that encourages students to talk, read and write **or argue** to improve their understanding in science and math. Connections using The Practices are the foundation for effective classroom discourse. Participants will receive the book, ***Success in Science through Dialogue, Reading and Writing*** by Arthur Beauchamp and Judi Kusnick

[Developing Integrated Curriculum for STEM K-5](#)

Integrating content across subjects has been promoted as a productive educational reform across several decades. With the global demand for 21st Century literate students, STEM teaching and learning is gaining momentum. Providing students with a STEM experience that includes an integrated, interdisciplinary approach to learning supported with hands-on, problem-based, relevant learning experiences is critical for helping them develop a deeper conceptual understanding. Participants will dig deeper into integrated STEM teaching and learning using the 5Es Instructional Model. Participants will also have the opportunity to work collaboratively to create a standards-based STEM lesson/unit.

[Constructing Explanations in Science \(Grades 5-8\)](#)

Learn to successfully incorporate scientific explanation in your classroom using a variety of strategies, rubrics, and guidelines for designing assessment items. You will break down the complex practice of scientific explanation into claims, evidence, and reasoning, and view examples of what the science practice explanation looks like when it is successfully implemented in the classroom. Participants will receive a copy of the book, ***Supporting Grade 5-8 Students in Constructing Explanations in Science*** by Katherine McNeill and Joseph Krajcik.

Recorded Webinars

Webinars are conducted through GoTo Training sessions. To view the recorded Webinars, you may need to install the [GoTo Meeting Codec](#) at no charge.

Please note: The ADE provides PD hours/certificates for participating in live webinars; no PD certificates will be issued for viewing recorded webinars.

STEM

- [Developing Authentic Science Fair Research and Projects \(HS\)](#) (recorded November 25, 2014)
- [Developing Authentic Science Fair Research and Projects \(Grades 5-8\)](#) (recorded October 30, 2014)
- [Integrating STEM Learning](#) (recorded October 22, 2014)

Science

- [Argument in the 6-12 Science Classroom](#) (recorded January 22, 2015)
- [Making Sense of ILLPs and Science](#) (recorded October 1, 2014)
- [Close Reading of Science Text](#) (recorded March 25, 2014)

Nature of Science Webinar Series

- [What is Science?](#) Part 1 of a 3-part series (recorded January 15, 2015)
- [The Nature of the Scientific Community](#) Part 2 of 3-part series (recorded February 11, 2015)
- [Developing Scientific Habits of Mind](#) Part 3 of 3-part series on Nature of Science (recorded April 28, 2015)